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ABSTRACT

This study was undertaken to validate a curriculum which integrated social studies, science, and musical concepts for first graders in terms of learner achievement. Learner achievement data were derived from 568 young learners in public schools. A four-group design which included one treatment group and three control groups was used. These groups were: a grade one sociomusic treatment group (n=317), a grade one separate subject comparison group (n=102), a kindergarten cohort group (n=73), and a grade two cohort group (N=76). The grade one treatment group experienced an integrated sociomusic curriculum taught by classroom teachers or instructional aides. The three control groups experienced separate subject instruction in music, social studies, and science taught by subject matter specialists. All four groups were similar in terms of socioeconomic and ethnic characteristics and all four groups were administered the same achievement instrument. Analyses of data revealed significant differences between group performances in social studies, science, and music concepts favoring the learner experiencing the integrative approach. (RM)

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Evaluation of A Sociomusic Curriculum for Young Learners

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ABSTRACT

This inquiry was undertaken to validate a curriculum which integrated social studies, science, and musical concepts for first graders in terms of learner achievement. The sample, 568 learners, included the following groups: grade one sociomusic treatment group, grade one separate subject control group, kindergarten cohort, and grade two cohort. The grade one treatment curriculum consisted of two 30 minute sociomusic lessons/week for 15 weeks, while the curriculum for the grade one control learners consisted of separate subject organization in social studies, science and music over the same period of time. Analyses of data from the various groups of grade one learners revealed significant differences between group performances in social studies, science, and music concepts favoring the learners experiencing the sociomusic curriculum. Analysis of data gathered from the cohort groups revealed the content addressed in the curriculum typically had not been achieved prior to grade one, but tended to be achieved by grade two learners.

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Extant literature reveals abundant thought and practice for intergrating music with other subject matter; however, there is little empirical evidence for the efficacy of combining music with other subjects. The Arts in General Education (AGE) movement typifies this literature. The definition and intent of AGE are:

> The arts are general education, which may or may not require that the arts relate to each other, necessarily combines learning in the arts with learning in other fields. Humanities courses that merge the arts with English and history are one form of the arts in general education... Infusion of the arts into all subject matter is mutually beneficial: the arts enhance learning in other subjects, and at the same time the infiltration into other subjects improves learning in the arts... To have merit, the approach should guarantee that arts experiences maintain their integrity within the integrated context. The arts process should not be distorted for the sake of the basics. (Fowler, 1978, p. 32)

The Arts, Education and Americans Panel report indicates that gains in learner achievement in other than the arts may be attributed to existing AGE programs (Rockefeller, 1977). However, the report concludes that "evaluation seems to be a nebulous affair; with no clearly articulated criteria for evaluating program effectiveness" (Rockefeller, 1977, p. 290). Fineberg (1980) echoes similar thoughts with the observation that most evaluation of arts in education programs have been

rather 'soft,' concentrating on attitude surveys of learners and/or teachers rather than on academic achievement of learners. Thus the question remains, does the integrated instruction of music with social studies and science effectively convey the concepts of music, social studies and science to grade one learners? In particular, this inquiry presents an evaluation of a curriculum plan which integrates social studies, science, and music concepts for grade one learners. Questions posed to guide this inquiry were:

1. Is there a difference between the integrated curriculum and the separate subject curriculum in terms of learner achievement of social studies, science, and music concepts?

2. Is the sociomusic content common knowledege of bordering cohort groups, i.e., kindergarten and grade two learners?

Methods

Data Source: Learner achievement data for this inquiry were derived from 568 young learners who were members of intact classes in ongoing public school programs. A four-group design which included one treatment group and three control groups was used. These groups were: a grade one sociomusic treatment group (n=317), a grade one separate subject comparision group (n=102), a kindergarten cohort group (n=73), and a grade two cohort group (n=76). The grade one treatment group experienced an integrated sociomusic curriculum taught by classroom teachers or instructional aides; while the three control groups experienced separate subject instruction in music, social

studies, and science taught by subject matter specialists. All four groups were similar in terms of socioeconomic and ethnic characteristics; and all four groups were administered the same achievement instrument.

For the comparision of different curriculums it was important that the grade one treatment and the grade one comparison groups represent similar populations. Both grade one groups, the treatment and the comparison, comprised total populations of grade one learners in separate schools of two separate school districts. Both schools were bilingual, totally integrated, low SES, south-central Texas schools. The major difference between the two schools was in the method of delivering social studies, science, and music to grade one learners. The comparison grade one learners experienced social studies, science, and music as separate subjects presented at separate times by specialist teachers. The treatment grade one learners experienced social studies, science, and music as intergrated subjects presented in a singular lesson period by classroom teachers or instructional aides. Collected data from the grade one separate subject comparison group were compared with those of the grade one socio-music treatment group to determine the difference between the two curricula in terms of learner achievement.

The kindergarten and grade two cohort groups were intact classes from the same school as the treatment group. Performance data from the kindergarten and the grade two cohort groups were used to assess the breadth of content included in the sociomusic treatment.

Treatment: The treatment consisted of two thirty-minute sociomusic lessons per week for fifteen weeks. Each sociomusic lesson plan stated specific behavioral objectives and associated concepts of social studies, science, and music. Selected musical activities facilitated the learning of the targeted learning objectives. Each sociomusic lesson progressed from an introductory musical activity through visual, verbal, and motor experiences to learner recapitulation of the to-be-learned information. An example of a sociomusic lesson plan is provided in figure 1.

place figure 1 about here

These plans were taught by classroom teachers who participated in weekly inservice activities devoted to the sociomusic curriculum. Phase one of the sociomusic inservice program consisted of three experiences described below:

> First, all grade one instructional personnel, and the school principal actively participated in an after school demonstration of the materials, methods, and rationale of a complete sociomusic lesson.
>
> Second, staff members individually observed the consultant teach a demonstration lesson to their class in the music room. Teachers and aides were encouraged to participate with their students during the demonstration lesson.
>
> Third, each teacher and instructional aide actually taught the same lesson they had observed while the consultant participated with the class. The consultant was available to assist and encourage the teacher in his/her first experience of teaching music.

Phases two and three repeated the phase one processes using new lesson plans and materials. During the development of curricular elements, a music resource aide was trained by the consultant regarding the preparation and presentation of sociomusic lessons to encourage the continuation of the sociomusic curriculum when the consultant's services would no longer be available.

The comparison grade one treatment consisted of two thirty-minute music lessons per week throughout the school year. Social studies and science curricula were delivered by classroom teachers in the classroom. Music education was delivered by a music specialist in the music room. The curriculum content of the comparison grade one and the sociomusic grade one were similar in that both adhered to the social studies, science, and music contents recommended by the Texas Education Agency; and both incorporated guidelines set by professional organizations.

The achievement instrument was administered to the grade one treatment group at the conclusion of the 15 weeks instructional treatment. However, it was not administered to the comparison grade one until the end of the school year in order to accomodate any differences in curriculum sequencing between the two schools.

Instrumentation: A 20-item multiple choice picture test similar to the Boehm Test of Basic Concepts (Boehm, 1971) was designed by one of the investigators and illustrated by a professional artist. This type of test minimized test bias by eliminating reading skill as a criterion of measurement. Each

test item contained three pictures, only one of which illustrated the concept to be identified. Examinees were required to mark an X on the picture that illustrated the concept. An example of two test items is provided in figure 2.

place figure 2 about here

The sample item (a) asked the examinees to show recognition of the body part that senses sound by marking an X on the picture of that particular body part. The sample item (b) asked the examinee to show recognition of the tambourine by marking an X on the picture of the tambourine. The cover page of the test booklet contained four practice items to insure that all examinees understood the directions and were able to draw an X on the appropriate picture.

The test required recognition of twenty grade one concepts including ten science/social studies items, nine music items, and one attitude item. The ten item set was subdivided into five social studies and five science items. Social studies items included two school safety and three geographical concepts. Science items included three sensory organ and two seasonal climate concpets. Music items included four rhythm instrument concepts, three music symbol concepts, one melodic and one rhythm concept.

Reliability of the instrument was determined to be .73 with the Kuder-Richardson formula-21 procedure while item validity was assessed through a panel of judges with respect to item content and clarity of line drawings.

Test administration followed separate detailed instructions. No verbal information was printed in the examinee's test booklet. One of the investigators read each item aloud twice, once in English and once in Spanish. The concept to be identified was given extra emphasis. A pause of approximately five seconds between each item allowed sufficient time for examinees to mark their booklets. Each item had one and only one correct answer. One of the investigators examined all learner responses; and the accuracy of judgements was reviewed by an instructional aide following administration of the test.

Results

Analyses of the subject data with respect to research question one revealed a difference in achievement with respect to concepts in science/social studies, and music. These results are illustrated in figures 3 and 4, respectively. The mean performances in science/social studies and music attained by

place figures 3 & 4 about here

the sociomusic treatment group exceeded those by the separate subject grade one comparison group. While these values are illustrated in figures 3 and 4, descriptive statistics are provided in table 1.

place table 1 about here

The observed differences between the grade one treatment and control groups were also found to be statistically different ($p < .01$) for achievement in both science/social studies and music.

Analysis of the group data with respect to the second research question guiding this inquiry yielded an incremental increase in achievement across grade levels on science/social studies and music. These incremental relations are apparent in figures 3 and 4. It is interesting to note however, that the grade one sociomusic treatment group compared very favorably with the grade two control group in science/social studies and actually exceeded this control group on music concepts. Statistical comparisons across these groups are presented in table 2.

---

place table 2 about here

As table 2 indicates, statistically significant differences occur across the four groups for both science/social studies and music. The variance accounted for by group membership in this investigation were 22% for science/social studies and 47% for music.

Discussion

The empirical findings of this inquiry support the logical discussion set forth by the Arts, Education and Americans Panel (Rockefeller, 1977). And while the results of this study were encouraging it would be unwise to suggest that incorporating music into science and social studies activities was solely

responsible for the observed outcomes. Rather, we support the view that these findings occurred as a result of the sum of the curriculum's structured parts which influenced sociomusic learner achievement. The curriculum's stated objectives, instructional strategies, and use of music as a learning medium are thought to be the causal agents which may explain the superior performance of the treatment group.

In conclusion, this evaluation of sociomusic, an arts in education curriculum, demonstrates the positive effects of integrating the instruction of music with science and social studies in terms of learner achievement in all three subjects. Further, this inquiry on sociomusic provides basic methodology for applying the arts integration theory by explaining instructional strategies that employ musical materials designed to promote learner cognitive processing of specified concepts of music, social studies, and science.

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Fowler, C.B. Integral and undiminished: The arts in general education. Music Educators Journal, 1978, 64, 30-33.

Rockefeller, J.D., Jr. (Chairman of the Panel). Coming to our senses: The significance of the arts for American education (The Arts, Education and Americans Panel Report). New York: McGraw-Hill Book Co., 1977.

SCCIOMUSIC LESSON ON FIVE SENSES

Grade One Science Objective: The child will be aware that each person possesses several senses that operate in congruence with each other; and certain organs aid us in our senses.

Science Concepts: Skin/touch; eyes/sight; ears/sound; tongue/taste; nose/smell.

Music Concepts: Sounds of percussion instruments are made by striking either skins (drums), metals (cymbals, triangles, & bells), or woods (rhythm sticks).

I. ENTRANCE ACTIVITY: "If You're Happy and You Know It" (parody by Brunk)-tape #000; acc. #276

‖: If you're happy and you know it touch your nose, (shout) How does it feel? :‖ (repeat)
If you're happy and you know it then your sense of touch will show it;
If you're happy and you know it touch your nose.

Sitting on floor inquire: "What else can we touch? What does it feel like to touch a kitten (ice, drum, skin, triangle, floor?")

Science Objectives: Skin and the sense (feel) of touch, recognizing the feel of different textures and different temperatures and describing the way a thing feels when it is touched (sensed) by the skin.

Music Objectives: Keeping the beat of a song while singing and moving in a circle, and enjoying a group activity in music.

II. REVIEW SONG: "The Littlest Witch" (children's halloween song)-tape #020; acc. #283

The tiniest witch you ever did see (triangles 7 beats ♩♩ ♩♩ ♩♩ ♩♩)
Came to the window and looked at me. (sticks 7 beats ♩♩ ♩♩ ♩♩ ♩♩)
I waved once or twice but very soon (cymbal crash 1 time ⌒ let ring 8 beats)
And flew to the moor. (Keyboard glissando going up ♩ ~ P)

Science Objectives: Relation between eyes/sight; ears/sound; and our musical dependence on sight and sound.

Music Objectives: Counting number of sounds each instrument is to play; seeing written music symbols which represent specific instrumental sounds; learning names of rhythm instruments being played; classifying instruments as wood, metal, or skin percussions; recognizing that musical sounds can move from low to high pitch.

III. NEW SONG: "Come and Make Me A Rainbow" (Melody House Record MH-80)-tape #092; acc. #296
Use large colored illustration of rainbow and emphasize the blessings of eyes and sight.

IV. MOVEMENT ACTIVITY V. CREATIVE ACTIVITY VI. SONG ON SENSE OF SMELL VII. STUDENT'S CHOICE.

FIGURE 1. An abbreviated sociomusic lesson plan.

(a) Test item three: "See pictures of the eye, the ear, and the tongue. Mark the body part that senses sound . . . . . Mark the body part that senses sound" (read aloud by the test administrator).

(b) Test item sixteen: "Look at the instruments made of skin. Mark the tambourine . . . . . Mark the tambourine" (read aloud by the test administrator).

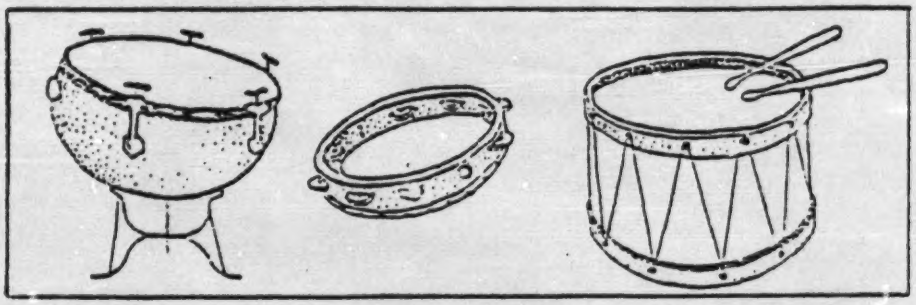
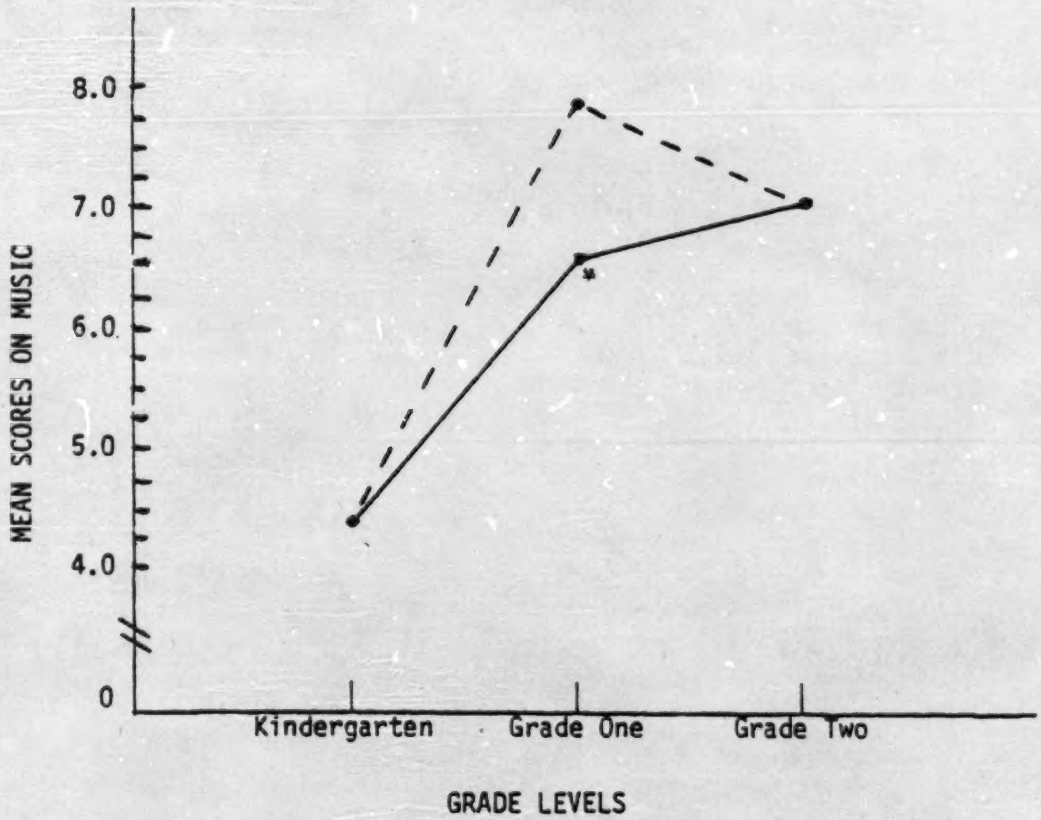


FIGURE 2. Two test items from the learner achievement instrument, "X Marks the Thing."

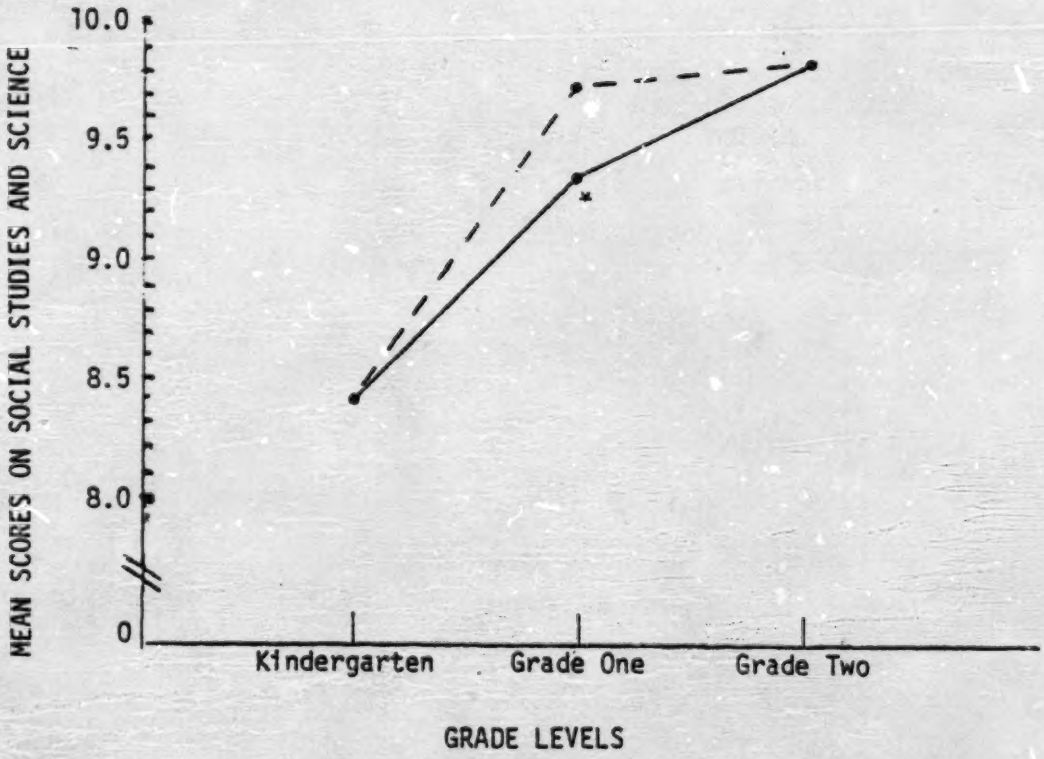


* This value was obtained from school district B while all other values were obtained from school district A.

Legend: ------ treatment grade one

_____ comparison groups

FIGURE 4. A comparison of the sociomusic treatment group with grade level achievement of music concepts.



* This value was obtained from school district B while all other values were obtained from school district A.

Legend: ------ treatment grade one

_____ comparison groups

FIGURE 3. A comparison of the sociomusic treatment group with grade level achievement of social studies and science concepts.

TABLE 1

Science/Social Studies and Music Achievement

Means, Standard Deviations, and Standard

Error of Means

Group	Mean Scores	Standard Deviation	Standard Error of Means
Cohort Kindergarten			
(n = 76)			
SS*	8.37	1.59	0.19
MU*	4.26	1.72	0.20
Comparison Grade One			
(n = 102)			
SS	9.23	1.13	0.11
MU	6.54	1.62	0.16
Treatment Grade One			
(n = 317)			
SS	9.72	0.55	0.03
MU	7.92	1.03	0.06
Cohort Grade Two			
(n = 76)			
SS	9.80	0.52	0.60
MU	6.99	1.33	0.15
Overall			
(n = 568)			
SS	9.49	0.98	0.04
MU	7.08	1.77	0.07

* SS represents the social studies and science concepts.
** MU represents the music concepts.

TABLE 2

ANOVA Summary Table for Comparison of Treatment and Cohort Groups

Comparison	Source	DF	SS	MS	F	ω^2
Social Studies and Science Achievement	Groups	3	118.97	39.65	52.63*	.218
	Error	564	424.94	0.75		
	Total	567	543.91			
Music Achievement	Groups	3	835.18	278.39	165.38*	.470
	Error	564	949.41	1.68		
	Total	567	1784.59			

* $p < .0001$.